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Academic language use in science education in Kindergarten

Astrid Menninga, Marijn van Dijk, Annemie Wetzels, Henderien Steenbeek & Paul van Geert

This study aims at gaining insight into the academic language use of teachers and their pupils in science education in Kindergarten. Using videotaped classroom observations of a video feedback coaching intervention study (Author Citation, 2012), teachers' (intervention n = 5, controls n = 5) and pupils' speech was transcribed and coded for turn-taking, lexical diversity, lexical sophistication and utterance length.



Background

Children often demonstrate strong intuitions in science and technology (e.g. Karmiloff-Smith, 1992), although they are not always successful in verbalizing their ideas. Talking helps children to clarify their thinking and develop their capacity to reason (Kuhn, Shaw & Felton, 1997; Venville, 2002). In the school situation, a sophisticated form of language is required.

Teachers familiarise children with sophisticated language by using complex structures and diverse vocabulary in interaction with them (French, 2004). Thus, teacher language becomes more challenging with the age of the child, indicating a dynamic process in which teachers continuously adapt their language to the child.

Data originate from an intervention study of Wetzels and Steenbeek (2012). Results show effects of the intervention: teachers anticipate better during the lessons and create more opportunities for the pupils to talk. Moreover, the scientific reasoning level of the pupils increases.

Research questions

- What are the differences between the intervention and control group regarding the use of academic language?
- What are the similarities and differences over time between teachers regarding academic language characteristics?

Method

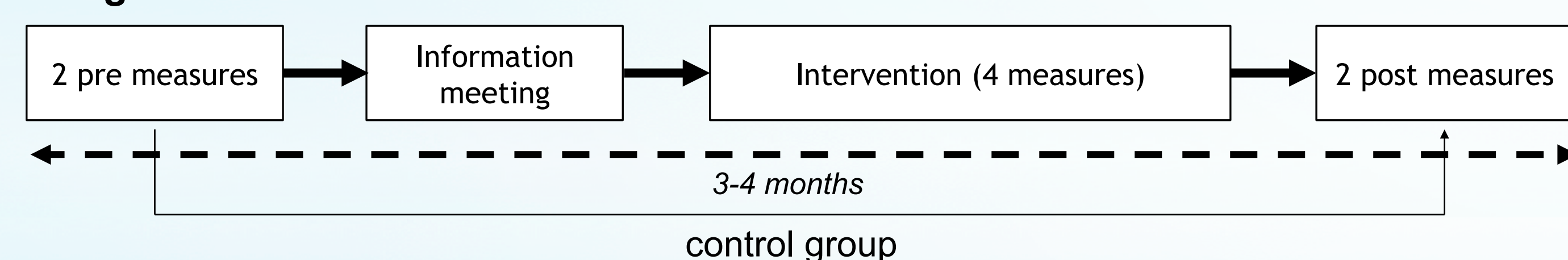
Participants

Teachers: N = 10 (5 intervention, 5 control), mean age = 50 years, 3-5 pupils per teacher.

Intervention

Video Feedback Coaching for teachers (developed by Wetzels & Steenbeek, 2012). Key elements: motivation of teachers, questioning skills and use of empirical cycle.

Design



Analyses

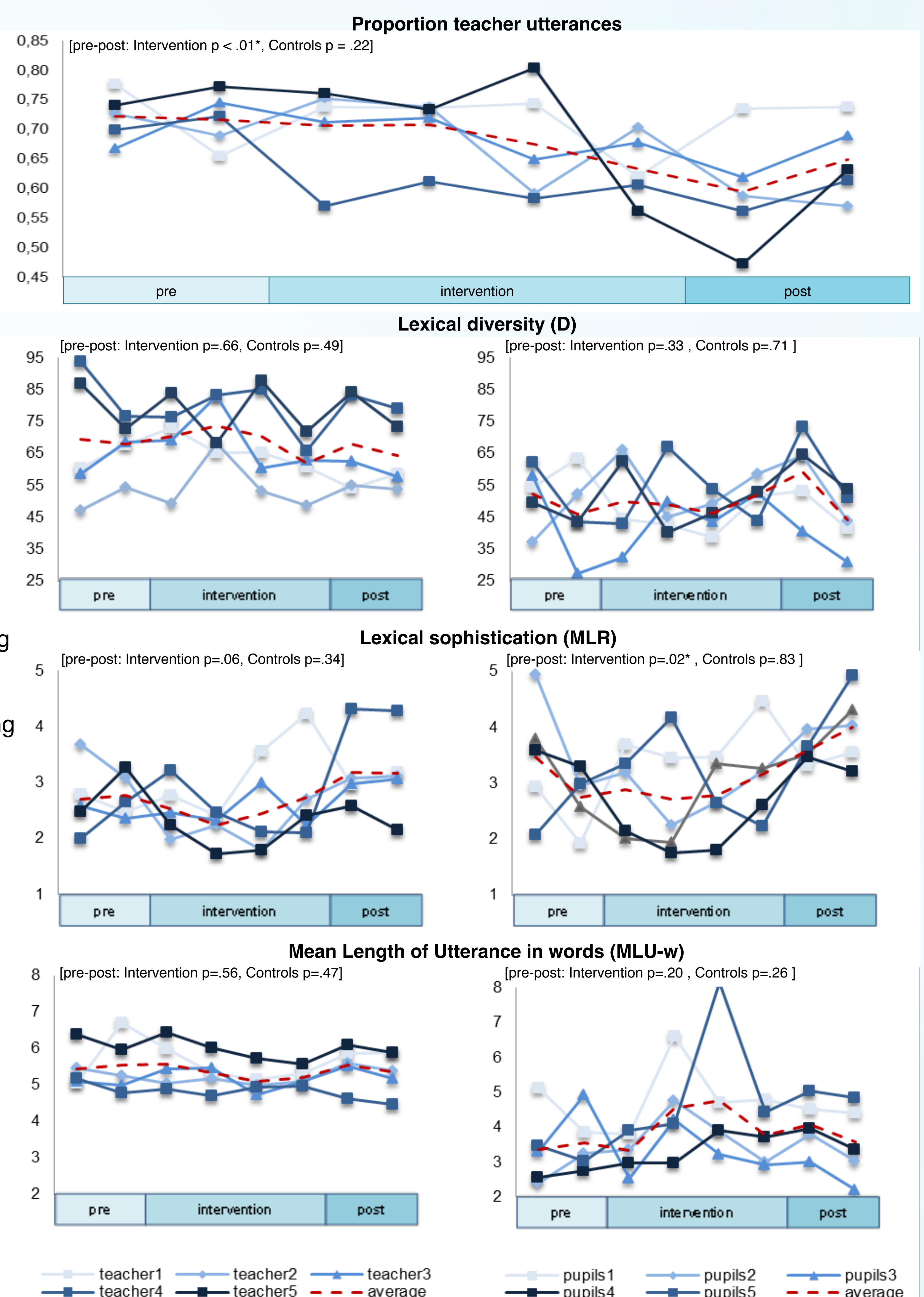
First ten minutes per lesson transcribed following the CHAT-conventions (MacWhinney, 2000). Linguistic analyses were performed using Computerized Language Analyses (CLAN) (MacWhinney, 2000):

Variables

- Mean length of turn in words (MLT-w)
- Lexical diversity (index D)
- Lexical sophistication (Measure of lexical richness (MLR) – Van Hout & Vermeer, 2007)
- Mean length of utterance in words (MLU-w).



Results



Conclusion

Results indicated changes in turn-taking and lexical sophistication for both teachers and pupils. There were few similarities in the development of the individual teachers, which reveals the idiosyncratic character of the data. In line with literature on the acquisition of academic language, these results suggest that a greater awareness of the importance of the teacher's role in stimulating academic language is needed. Science and technology lessons are a good starting point to elicit academic language but should be an important explicit goal for teachers in science education.